

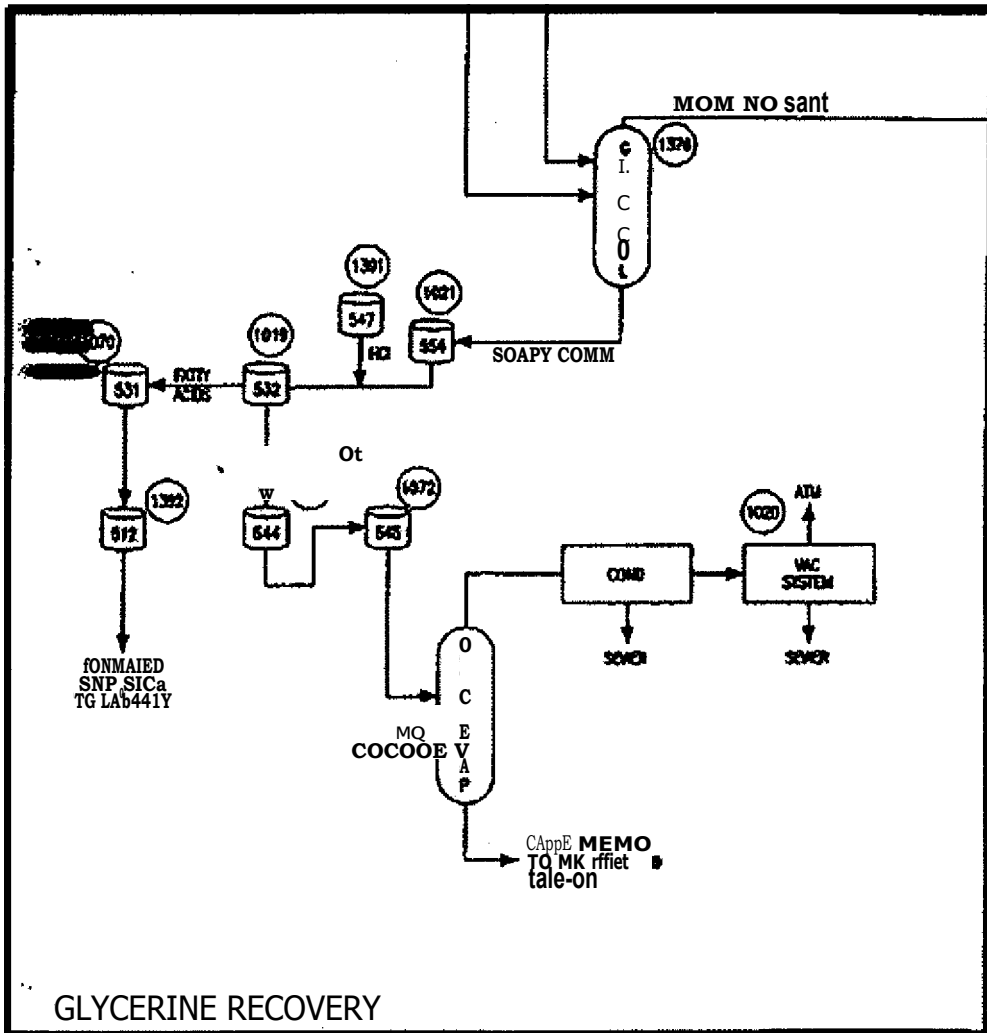
AIR QUALITY
MANAGEMENT DISTRICT**AUTHORITY TO CONSTRUCT EVALUATION**APPLICATION NO.: A/C 23262DATE: January 3, 2012ISSUING ENGINEER: Ady R. Santos**FACILITY NAME:** THE PROCTER & GAMBLE MANUFACTURING CO**LOCATION:** 8201 FRUITRIDGE RD., SACRAMENTO, CA 95826**PROPOSAL:** MODIFICATION OF THE METHYL ESTER AND GLYCERINE MANUFACTURING PROCESS (EXISTING P/O 22270) BY THE REPLACEMENT OF TANK NO. 532 (EMISSIONS UNIT NO. 1019) WITH A LARGER CAPACITY**INTRODUCTION:**

Methyl Ester and Glycerine Manufacturing Process Vegetable oils, predominantly coconut and palm kernel, are reacted with methyl alcohol in the presence of sodium methylate. The glycerides which make up the oils react to form methyl esters and crude glycerine. The mixture of glycerine and esters are gravity separated, washed and dried prior to entering interim storage. The esters are fractionated into short chain (C6-C10) and long chain (C12-C18) blends for further processing into finished product. The glycerine is shipped to another P&G facility.

Tank 532 is used to remove fatty esters from glycerine. Raw glycerine, which contains fatty esters from Tank 554 and hydrochloric acid are continuously mixed inline and fed into Tank 532. Tank 532 is a level-controlled tank that is not agitated to allow for good phase separation. The hydrochloric acid reacts with the fatty esters in the raw glycerine feed to make fatty acids. The glycerine and the water phase settles to the bottom of Tank 532 and the fatty acids phase, which contains some water, rises to the top of Tank 532. The fatty acids range from C6 to C20 in chain length based on the chain length in the vegetable oils. A top fatty acid layer is continuously removed and sent to Tank 531 and the bottom glycerine phase is transferred to intermediate storage, through Tank 544, which feeds the glycerine evaporator for removal of water. The fatty acid top phase in Tank 532 has a very low vapor pressure and controls the air emissions from Tank 532.

Process Modification Procter & Gamble (P&G) proposes to modify the Methyl Ester and Glycerine Manufacturing process (P/O 22270) by replacing Tank No. 532 with a larger capacity tank in the glycerine recovery area. The tank serves as a glycerine acidulation reactor where the process stream primarily consists of soapy crude glycerine. The proposed tank will only increase the working volume of the tank and prolong the residence time of the glycerine recovered from the glycerine column. There will be no change in the material and process throughput conditions.

PROCESS FLOW DIAGRAM:



EQUIPMENT DESCRIPTION:

Permit No	P/O 22270 (Existing)	NC 23262 (New)
Emissions Unit	Tank 532	
Emission Source ID	1019	
Equipment ID	71-D-305	
SOCMI Device	Reactor	
Product	Raw glycerine	
Tank Dimension	8' D x 14' H	12' D x 10' H
Capacity	5,076 gal	8,400 gal
Max. Allowable Throughput	26,250,000 lb/quarter	
Tank Type	Vertical fixed roof	
Roof Type	Dome (1.5' H)	
Vent	4" D (to atmosphere)	

*Refer to **Appendix 'A'** for the Process Equipment Description*

PROCESS RATE/FUEL USAGE:

Emission Source ID	Emissions Unit	Maximum Allowable Throughput lb glycerine/quarter
1019	Tank 532 (New)	26,250,000

OPERATING SCHEDULE:

The P&G plant operates 24 hours/day, 7 days/week.

CONTROL EQUIPMENT EVALUATION:

The proposed Tank 532 will be equipped with a 4" diameter vent to the atmosphere.

EMISSIONS CALCULATIONS:

1. HISTORIC POTENTIAL TO EMIT:

Background — Existing Tank 532 The current Tank 532 was source tested on 12-10-04. The results of the emissions testing showed a VOC emission rate of 2.4E-06 lb/hr or 0.021 lb/year (24 hours/day, 365 days/year). In 2005, P&G implemented the Netcap' project that involved modifications to the equipment and product throughput in the methyl ester and fatty alcohol manufacturing processes. One of the affected emissions unit is Tank

532 (Emission Source ID 1019). In their application for permit modification (P/O 18398), P&G submitted emissions from Tank 532 using Tanks 4.0 emissions modeling calculation. The emissions report showed the total tank working and breathing losses of 1,679.43 lb/year, where 48.73 lb/year are VOC emissions. Refer to **Appendix C-I – Process Tanks 4.0 Emissions Results (Mar 4, 2005)**. The report further states that the components in Tank 532 consist of glycerine, **methyl alcohol** and water. Notwithstanding the lower VOC rate measured from the 2004 source test, the maximum allowable emissions for Tank 532 in the 'Netcap' permit modification (Methyl Ester & Glycerine Manufacturing Process) was increased from 10 lb/quarter to 12 lb/quarter, based on the Tanks emissions calculation referenced above as worst case condition.

P&G submitted a revised Tanks 4.0 emissions calculation for current Tank 532 that corrected the raw glycerine components in the tank that primarily consist of fatty acid chains and water. Another difference is the use of a default turnover of 4 as allowed in Tanks 4.0 for surge or constant level tanks. The results of the tank emissions modeling showed annual VOC emissions of 0.38 lb/year.

As stated above, the Tanks 4.0 modeling results in 2005 indicated that the components in Tank 532 are glycerine, methyl alcohol and water. By referring to the P&G flow diagram, methanol and water is removed from the glycerine column (glycerine recovery process) and sent to the methanol dryer in the methanol recovery section. The Tank 4.0 emissions calculations for the existing and proposed Tank 532 are attached as **Appendix 'C'**.

In view of the foregoing background information, the potential to emit for the process permit (P/O 22270) will be administratively corrected in this permit action by using a 1 lb per quarter emission limit. The corrected potential emissions from Tank 532 will reduce the process emission to 5,131 lb/quarter.

Permit No./ Emissions Unit	Pollutant	Historic Potential to Emit lb/quarter
P/O 22270/ Tank 532	VOC	1

Permit No./ Process Unit	Pollutant	Historic Potential to Emit lb/quarter
P/O 22270/ Methyl Ester & Glycerine Mfg Process	VOC	5,131

2. PROPOSED POTENTIAL TO EMIT:

Proposed Tank 532 The proposed Tank 532 will have 65% more capacity than the existing Tank 532. The increase in the working volume of the proposed tank will only prolong the residence time of the glycerine recovered from the glycerine column, as there will be no change in the material and process throughput conditions.

For this permit action, P&G submitted tank emissions for the existing and proposed tanks using the Tanks 4.0.9 modeling software. P&G explained that the soapy glycerine components coming from the glycerine column that go through Tank 532 primarily consist of fatty acids (esters with short and long chains C6 to C14) and water. The fatty acid layer and water that stays on top of this tank is the source of the tank emissions, being a level-controlled vessel. This was the basis in the emissions modeling. Furthermore, the calculation methodology in the new emissions calculation used a turnover rate of 3.3, which is consistent with the User's Guide to Tanks 4.0, Section 4.2.1. The Tanks document suggests using a default turnover rate of 4 for surge or constant level tanks.

Permit No./ Emissions Unit	Pollutant	Proposed Potential to Emit	
		(lb/day)	(lb/quarter)
NC 23262/ Tank 532	VOC	0.01 (A)	1 (B)

(A) Daily emission limit is based on the quarterly limit and 92 operating days per quarter.

(B) Refer to **Appendix 'B' — Methyl Ester & Glycerine Mfg Process Emissions**.

Permit No./ Process Unit	Pollutant	Proposed Potential to Emit	
		(lb/day)	(lb/quarter)
A/C 23262/ Methyl Ester & Glycerine Mfg Process	VOC	55.8 (A)	5,131 (B)

(A) Daily emission limit is based on the quarterly limit and 92 operating days per quarter.

(B) Refer to **Appendix 'B' — Methyl Ester & Glycerine Mfg Process Emissions**.

3. CALCULATION OF BACT TRIGGER:

$$NEI = (DPE - DHPE)$$

DPE (BACT) = Daily Potential Emissions

DHPE = Daily Historic Potential Emissions or Daily Actual Emissions if no enforceable daily emissions limitation is present prior to modification.

Pollutant	DPE (BACT) lb/day	DHPE	NEI lb/day	BACT Trigger Level lb/day	Is BACT Required?
VOC	55.8	55.8	0	>0	No
NOx	0	0	N/A	>0	N/A
SOx	0	0	N/A	>0	N/A
PM10	0	0	N/A	>0	N/A
PM2.5	0	0	N/A	>0	N/A

Pollutant	DPE (BACT) lb/day	DHPE	NEI lb/day	BACT Trigger Level lb/day	Is BACT Required?
CO	0	0	N/A	>650	N/A
Lead	0	0	N/A	3.3	N/A

4. CALCULATION OF OFFSET TRIGGER FOR VOC AND NOx:

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
P/O 11664	APC Methanol Absorber	3,092	0
P/O 13852	IC Engine Standby (209 BHP)	Replaced by 22794	Replaced by NC 22794
P/O 16252	APC Rotoclone	0	0
P/O 16564	Fire Pit Stack	0	0
P10 16567	North Vent Seal Tank	920	0
P/O 17487	Wastewater Treatment System	2,038	0
P/O 17566	Heater (3.2 MMBtu/hr)	389	770
P10 18457	Heater (9.9 MMBtu/hr)	120	398
P/O 18614	Heater (4.85 MMBtu/hr)	59	390
P/O 20505	Fatty Acids Mfg Process	138	0
P/O 20993	APC Scrubber	2	0
P10 21765	South Vent Seal Tank	3,036	0
P/O 22004	Storage Tank Farm	597	0
P/O 22005	Physically Refined Oil Process	733	0
P/O 22007	Fatty Alcohol Mfg Process	30,221	0
P10 22008	APC Methanol Scrubber	24	0
P/O 22033	Boiler (3.75 MMBtu/hr)	46	301
P/O 22270	Methyl Ester & Glycerine Mfg Process	See NC 23262	See NC 23262
P/O 22483	APC Thermal Oxidizer (NTO)	134	482
P/O 22484	APC Thermal Oxidizer (STO)	107	482
P/O 22485	APC Methanol Absorber	0	0
P/O 22486	APC Scrubber	0	0

Permit No.	Emissions Unit	Stationary Source Potential to Emit lb/quarter	
		VOC	NOx
A/C 22794	IC Engine Standby (146 BHP)	64	193
NC 23262	Methyl Ester & Glycerine Mfg Process	5,131	0
Total		46,851	3,016
Facility Limit		N/A	N/A
Offset Trigger Level		5,000	5,000

Refer to **Appendix 'D'** for Procter & Gamble's 5-Year NSR balances.

5. CALCULATION OF OFFSET TRIGGER FOR SO_x, PM₁₀ AND CO:

Permit No.	Emissions Unit	Stationary Source Cumulative Emission Increase Since 01-01-77 lb/quarter		
		SO _x	PM ₁₀	CO
P/O 11664	APC Methanol Absorber	0	0	0
P/O 13852	IC Engine Standby (209 BHP)	Replaced by NC 22794	Replaced by NC 22794	Replaced by NC 22794
P/O 16252	ARC Rotocloner	0	130	0
P/O 16564	Fire Pit Stack	0	0	0
P/O 16567	North Vent Seal Tank	0	0	0
P/O 17487	Wastewater Treatment System	0	0	0
P/O 17566	Heater (3.2 MMBtu/hr)	42	537	2,607
P/O 18457	Heater (9.9 MMBtu/hr)	13	166	809
P/O 18614	Heater (4.85 MMBtu/hr)	6	81	792
P/O 20505	Fatty Acids Mfg Process	0	0	0
P/O 20993	APC Scrubber	0	0	0
P/O 21765	South Vent Seal Tank	0	0	0
P10 22004	Storage Tank Farm	0	0	0
P/O 22005	Physically Refined Oil Process	0	365	0
P/O 22007	Fatty Alcohol Mfg Process	0	0	0
P/O 22008	APC Methanol Scrubber	0	0	0

Permit No.	Emissions Unit	Stationary Source Cumulative Emission Increase Since 01-01-77 lb/quarter		
		SOx	PM10	CO
P/O 22033	Boiler (3.75 MMBtu/hr)	5	63	2,451
P/O 22270	Methyl Ester & Glycerine Mfg Process	See A/C 23262	See A/C 23262	See A/C 23262
P/O 22483	APC Thermal Oxidizer (NTO)	8	101	1,113
P/O 22484	APC Thermal Oxidizer (STO)	8	101	1,113
P/O 22485	APC Methanol Absorber	0	0	0
P/O 22486	APC Scrubber	0	0	0
A/C 22794	IC Engine Standby (146 BHP)	0	10	238
NC 23262	Methyl Ester & Glycerine Mfg Process	0	0	0
Total		82	1,554	9,123
Facility Limit		N/A	N/A	N/A
Offset Trigger Level		?_13,650	7,500	?..49,500

6. CALCULATION OF OFFSET TRIGGER FOR PM2.5:

Permit No.	Emissions Unit	Stationary Source Cumulative Emission Increase Since 01-01-77 tons/year
		PM2.5
P/O 11664	APC Methanol Absorber	0
P/O 13852	IC Engine Standby (209 BHP)	Replaced by A/C 22794
P/O 16252	APC Rotoclone	0.26
P/O 16564	Fire Pit Stack	0
P/O 16567	North Vent Seal Tank	0
P/O 17487	Wastewater Treatment System	0
P/O 17566	Heater (3.2 MMBtulhr)	1.07
P/O 18457	Heater (9.9 MMBtulhr)	0.33
P/O 18614	Heater (4.85 MMBtu/hr)	0.16
P/O 20505	Fatty Acids Mfg Process	0
P/O 20993	APC Scrubber	0
P/O 21765	South Vent Seal Tank	0

Permit No.	Emissions Unit	Stationary Source Cumulative Emission increase Since 01-01-77 tons/year
		PM2.5
P/O 22004	Storage Tank Farm	0
P/O 22005	Physically Refined Oil Process	0.13
P/O 22007	Fatty Alcohol Mfg Process	0
P/O 22008	APC Methanol Scrubber	0
P/O 22033	Boiler (3.75 MMBtu/hr)	0.13
P/O 22270	Methyl Ester & Glycerine Mfg Process	See A/C 23262
P/O 22483	APC Thermal Oxidizer (NTO)	0.20
P/O 22484	APC Thermal Oxidizer (STO)	0.20
P/O 22485	APC Methanol Absorber	0
P/O 22486	APC Scrubber	0
A/C 22794	IC Engine Standby (146 BHP)	0.02
NC 23262	Methyl Ester & Glycerine Mfg Process	0
<u>Total</u>		3.1
Facility Limit		N/A
Offset Trigger Level		X15

7. CALCULATION OF EMISSION OFFSETS FOR VOC AND NOx:

Emission offset has been triggered for VOC in previous permit actions and appropriate emissions offsets have been provided by P&G. However, this permit action does not result in an increase in VOC quarterly emissions. Emission offset is not triggered for NOx. Therefore, emission offsets are not required for VOC and NOx.

8. CALCULATION OF EMISSION OFFSETS FOR SOx, PM10, PM2.5 AND CO:

Emission offsets are not required for SOx, PM10, PM2.5 and CO because emissions are below the offset threshold.

COMPLIANCE WITH RULES AND REGULATIONS:

1. H&S Code § 42301.6 (AB 3205) COMPLIANCE:

The process equipment is not located within 1,000 feet from the outer boundary of a school site. Therefore, this permit action is not subject to the public noticing requirements

of H&S Code § 42301.6 do not apply.

2. NSR COMPLIANCE:

Rule 214 — Federal New Source Review

Section 113 - Exemption - Notification Requirements The increase in potential to emit from this process unit does not meet or exceed the following levels requiring public noticing pursuant to the requirements of Sections 405, 406, 407 and 409.2. However, this exemption does not apply because this application is being reviewed under the Enhanced New Source Review process in accordance with Section 404.

<u>Pollutant</u>	<u>lb/qtr</u>
VOC	5,000
NOx	5,000
SOx	13,650
PM10	7,300
PM2.5	10 ^(A)
CO	49,500

^(A) Units are in tons/year.

Section 301 - Best Available Control Technology The proposed potential to emit from this emissions unit do not meet or exceed the BACT threshold for the affected pollutant as specified in Section 301.1 and below. Therefore, BACT will not be required.

<u>Pollutant</u>	<u>lb/day</u>
VOC	0
NOx	0
SOx	0
PM10	0
PM2.5	0
CO	550
Lead	3.3

Section 302 - Offset The cumulative emissions increase for this stationary source only exceeds the VOC level for the affected pollutants as specified in Section 302.1 and below. However, this permitting action does not result in an increase in VOC emissions. Therefore, emission offsets will not be required.

<u>Pollutant</u>	<u>lb/qtr</u>
VOC	5,000
NOx	5,000
SOx	13,650
PM10	7,300
PM2.5	15 ^(A)
CO	49,500
Ammonia	100 ^(A)

^(A) Units are in tons/year.

Section 307 — Denial, Failure to Meet Standards This permit action is expected to comply

with the standards stated in District, State or Federal rules, regulations or statutes.

Section 404 — Enhanced New Source Review P&G requested that this permit application be reviewed in accordance with the enhanced NSR process. Accordingly, the procedures specified in Sections 401 through 408 of Rule 207 (Title V Federal Operating Permit Program) and 40 CFR 70, Section 70.6(a) — 70.6(g), 70.7(a) and 70.7(b) shall be followed.

Sections 405 — 407 & 409.2 — GARB, EPA and Public Notification The publication, notification and public comment required in these sections shall be met when the procedures in Rule 207, Sections 401 — 408 are implemented.

3. RULE 207 — TITLE V - FEDERAL OPERATING PERMIT PROGRAM:

Section 233 lists the criteria that make a Title V permit modification significant. A modification to a federally enforceable condition in the Title V permit is significant if it:

- a) Involves any modification under Section 112(g) of Title I of the Clean Air Act;
- b) Involves a relaxation or significant change to existing monitoring, reporting or recordkeeping requirements in the Title V permit;
- c) Involves a case-by-case determination of an emission limit or standard;
- d) Involves a stationary source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis;
- e) Attempts to set or change a Title V permit term or condition which allows a source to avoid an applicable federal requirement; or
- f) Involves a modification to a major stationary source which results in an increase in the potential to emit greater than 25 TPY of nitrogen oxides, 25 TPY of volatile organic compounds, 40 TPY of sulfur dioxide, 100 TPY of carbon monoxide, or 15 TPY of sulfur dioxide, 100 TPY of carbon monoxide, or 15 TPY of PM10 when aggregated with all other increased in potential to emit over a period of five consecutive years before the application for modification, and including the calendar year of the most recent application.

Pursuant to Section 220, a minor Title V permit modification is a modification to a federally enforceable condition in a Title V permit to operate if:

- a) is not a significant Title V permit modification;
- b) is not an administrative Title V permit modification; and
- c) does not violate any applicable requirements which are federally enforceable.

Since this permit action do not fall under any one of conditions a) to f) above, therefore, this permit modification is deemed a minor Title V permit modification.

Section 301.6 states that a complete Title V permit application for minor Title V permit modification shall be submitted by the source after issuance of the permit to construct but prior to commencing operation associated with this project.

Section 401 through 408 — Administrative Requirements

These sections are administrative procedural requirements for all Title V permit processing and review. The enhanced NSR process will ensure that the requirements for application completeness determination, preliminary decision, public noticing and 30-day comment

period for the preliminary decision, transmittal of preliminary decision to the U.S. EPA for a 45-day review, public objection, and notification and publication of final action on the permit application are met.

4. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) COMPLIANCE:

A source or modification triggers PSD if:

- Its potential to emit any one pollutant is greater than 100 tons/year (if one of the 28 selected industrial categories, including utility plants, steel plants, refineries, boilers >250 MMBtu/hr heat input) or greater than 250 tons/year (all other categories); and
- The project's contemporaneous emissions increase and net emissions increase for any pollutant is greater than the significance levels listed below:

Pollutant	Level of Significance tons/year
CO	100
NOx	40
SOx	40
PM	25
PM10	15
PM2.5	10 (PM2.5) or 40 (SO2) or 40 (NO)
Ozone	40 (NOx or VOC)
Lead	0.6
Fluorides	3
Sulfuric Acid Mist	7
H ₂ S	10
Total Reduced Sulfur (including H ₂ S)	10
Reduced Sulfur Compounds (incl. H ₂ S)	10
Greenhouse Gases (CO ₂)	75,000

A more detailed PSD analysis is not required because the contemporaneous emissions increases for all pollutants at the facility do not exceed any of the significance levels shown in the table above.

5. PROHIBITORY RULES COMPLIANCE:

Rule 401 — Ringelmann Chart

The synthetic organic chemical manufacturing operations at Procter & Gamble is expected to comply with the Ringelmann No. 1 or 20% opacity requirement of this rule

Rule 402 — Nuisance

The chemical process is not expected to cause injury, detriment, nuisance or annoyance to the public. Reference is made to the February 2010 Procter & Gamble Health Risk Assessment Report, where the cancer risks and noncancer hazard indices identified for receptors at point of maximum impact and at points of maximum exposure to the individual resident and worker were considerably less than 1 in a million and 1, respectively.

Rule 443 — Leaks from Synthetic Organic Chemical and Polymer Manufacturing

Procter & Gamble is subject to the fugitive emission testing requirements of this rule. The facility has been implementing a Leak Detection and Repair (LDAR) program and has complied with the inspection and repair standards specified in this rule.

Rule 446 — Storage of Petroleum Products

The storage tank has a capacity less than 40,000 gallons, therefore, this rule does not apply.

Rule 464 — Organic Chemical Manufacturing Operations

The process unit affected by this modification, reactor Tank 532, does not have a potential to emit of 330 lb/day or more of uncontrolled VOC, which would require a control device pursuant to Section 303.1. This tank has a potential to emit of 12 lb/quarter, which is less than the required reduced uncontrolled emission of 33 lb/day. This rule does not apply to Tank 532.

6. NEW SOURCE PERFORMANCE STANDARDS (NSPS) COMPLIANCE:

40 CFR 60 Subpart VV — Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (SOCMI)

Procter & Gamble is considered a SOCMI source because of its production of methanol as a byproduct and mixed alcohols (typically C6 and higher). Methanol and various alcohols in this range appear on the list in Section 489. The affected facility consists of all the equipment listed in Section 481 within their respective process units. The process units are the methyl ester/glycerine and the fatty alcohol manufacturing processes. These process units, and the affected facilities, qualify for the exemption in Section 480 (d)(3) because the facility produces heavy liquid chemicals from heavy liquid feed. Therefore, the affected facility is exempt from the requirements of Section 482, but will have to maintain records as required by Section 486(i).

40 CFR 60 Subpart NNN — Standards of Performance for Volatile Organic Compound Emissions (VOC) from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations

This subpart applies to new or modified distillation units that produce any of the chemicals listed in Section 60.667. The affected facilities in the methyl ester/glycerine process are the four distillation units that process glycerine and methanol. For the fatty alcohol manufacturing process, the four alcohol stills and sodium methyolate column are the affected facilities. This subpart does not apply to the reactor Tank 532.

7. NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP) COMPLIANCE:

40 CFR 63 Subpart F — National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry

This subpart, called HON, applies to facilities that meet all of the following criteria:

- a) Facilities that manufacture as a primary product one or more of the chemicals listed in Table 1, Section 106.
- b) Facilities that use as a reactant or manufacture as a by-product, co-product, or intermediate one or more of the chemicals listed in Table 2, Section 106.
- c) Facilities that are not located at a plant that is a major source per Section 112(a).

Procter & Gamble does not produce any of the products listed in Table 1. Therefore, this subpart is not applicable.

40 CFR 63 Subpart Q — National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers

This subpart applies to industrial process cooling towers that use chromium containing water treatment chemicals. This regulation prohibits the use of such chemicals. P&G operates a cooling tower in the Physically Refined Oil Process. Therefore, this facility is prohibited from using chromium-containing chemicals in the cooling tower.

40 CFR 63 Subpart FFFF — National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing

P&G is subject to this amended regulation and is in compliance with the requirements of this subpart as of the extended deadline on May 9, 2009.

A summary of the MON MACT compliance standards for existing and new or reconstructed facilities are shown in the table below:

Miscellaneous Organic Chemical Manufacturing Subpart FFFF MON MACT Compliance Requirements		
Processing Unit	Existing Facilities	New and Reconstructed Facilities
1. Process Vents - Continuous	Either reduce organic HAP by 98%, closed-vent system to a flare, 520 ppmv outlet, or minimum TRE >1.90.	Either reduce organic HAP by ?-98%, closed-vent system to a flare, 520 ppmv outlet, or minimum TRE >1.9.

Miscellaneous Organic Chemical Manufacturing Subpart FFFF MON MACT Compliance Requirements		
Processing Unit	Existing Facilities	New and Reconstructed Facilities
2. Process Vents - Batch	For total batch vent emissions 0,000 lb/year, reduce organic HAP by 98%/0, or 520 ppmv outlet; Alternatively, reduce organic HAP by 95%/0 using recovery devices.	For total batch vent emissions 3,000 lb/year, reduce organic HAP by .98%, or .20 ppmv outlet; Alternatively, reduce organic HAP by .95% using recovery devices.
3. Process Vents - Hydrogen Halide (HF/HCl) and Halogen (Cl ₂) HAPs	For total process uncontrolled halogen halide and halogen HAP emissions 21,000 lb/year, reduce by ?..99%/0 or s20 ppmv outlet for combustion and non-combustion streams.	For total batch vent emissions .1,000 lb/year of Hydrogen Halide and Halogen HAP, reduce HAP by ?..99% or s20 ppmv outlet for combustion and non-combustion streams.
4. Process Vents - Particulate Matter HAPs	No control required.	For total batch vent emissions ?..400 lb/year Particulate Matter, reduce PM HAP by .?_97% by weight.
5. Storage Tanks	Reduce organic HAP emissions 95%/0 or to 520 ppmv of TOC or organic HAP or IFR/EFR (?..10,000 gallons and ..1.0 psia).	Reduce organic HAP emissions 95% or to 20 ppmv of TOC or organic HAP or IFR/EFR (?1 0,000 gallons and .?.1.0 psia).
6. Transfer Racks	Reduce organic HAP emissions 98%/0 or to 520 ppmv for facilities that transfer >0.17 million gallons per year and .1.5 psia.	Reduce organic HAP emissions \$98 ¹ / ₀ or to s20 ppmv for facilities that transfer >0.17 million gallons per year and ?-1.5 psia.

Miscellaneous Organic Chemical Manufacturing Subpart FFFF MON MACT Compliance Requirements		
Processing Unit	Existing Facilities	New and Reconstructed Facilities
7. Leak Detection Program	Full leak detection program with monitoring for all MCPU associated systems. Batch processes must comply with Subpart TT or Subpart UU. Continuous processes must comply with either Subpart H (CAR) or Subpart UU. An MCPU with at least one continuous process vent (even if the process is otherwise batch) must comply with Subpart UU.	Full leak detection program with monitoring for all MCPU associated systems. All processes must comply with Subpart H (CAR) or Subpart UU.
8. Wastewater Treatment	Control if .50 ppmv Table 8 and 10,000 ppmv Tables 8 and 9, or >1,000 ppmv Tables 8 and 9 and flowrate of 1 lpm, or 30,000 ppmv Table 9 and >1 TPY. Develop and implement Maintenance WW plan, cleaning fluids are considered process fluids. Vapor suppression and route to closed-vent system with a95% removal.	Control of very volatile organic HAP if •10 ppmv and 50 ppmv Table 8 and 10,000 ppmv Tables 8 and 9, or 1,000 ppmv Tables 9 and flowrate of 1 lpm, or a4,500 ppmv Table 9 and TPY. Vapor suppression and route to closed-vent system with .95% removal.

In accordance with the reporting requirements under the MON NESHAP [40 CFR 63.2520(d)], Procter & Gamble had submitted to the U.S. EPA a Notification of Compliance Status (NOCS) Report on Oct. 5, 2009 and a Semi-Annual Compliance Report for the period July 1, 2011 to December 31, 2011 on Jan. 30, 2012.

8. AIRBORNE TOXIC CONTROL MEASURE (ATCM) COMPLIANCE:

From CARB's list of promulgated mobile and stationary Airborne Toxic Control Measures (ATCM), there is no ATCM that is applicable to organic chemical manufacturing operations.

RECOMMENDATIONS:

This equipment should comply with all applicable Federal, State and District rules and regulations. An authority to construct a new reactor Tank 532 should be issued to The Procter & Gamble Manufacturing Co. with the following conditions.

Refer to conditions in Authority to Construct No. 23262.

REVIEWED BY:

DATE: _____

Appendix 'A'

METHYL ESTER & GLYCERINE MFG PROCESS
EQUIPMENT DESCRIPTION

NC 23262
THE PROCTER & GAMBLE MANUFACTURING CO.

METHYL ESTER AND GLYCERINE MANUFACTURING PROCESS

A/C NO.	EQUIPMENT DESCRIPTION
23262	<p>METHYL ESTER AND GLYCERINE MANUFACTURING PROCESS CONSISTING OF THE FOLLOWING:</p> <p>A. SODIUM METHOXIDE CATALYST MAKING PROCESS</p> <ol style="list-style-type: none">1. METHANOL ANALYSIS TANK2. SODIUM METHOXIDE INTERCHANGE3. SODIUM METHOXIDE ANALYSIS TANKS4. SODIUM METHOXIDE PUMP5. SODIUM METHOXIDE COLUMN6. SODIUM METHOXIDE REBOILER7. DRY METHANOL FINAL CONDENSER <p>B. ESTER MAKING, FLASHING, WASHING AND DRYING PROCESS</p> <ol style="list-style-type: none">1. ESTERIFICATION 1ST, 2ND AND 3RD SETTLER MIXERS2. ESTERIFICATION REACTOR3. ESTERIFICATION 1ST, 2ND AND 3RD SETTLERS4. ESTER PUMP5. ESTER FLASH INTERCHANGER6. ESTER FLASH PREHEATER7. ESTER FLASH TANK8. ESTER FLASH COOLER9. ESTER FLASH PUMP10. ESTER WASH WATER COOLER11. FOUR (4) ESTER WASH COLUMNS12. ESTER DRYER13. ESTER DRYER PUMP14. ESTER DRYER CONDENSER15. ESTER DRYER VACUUM SYSTEM16. ESTER DRYER METHANOL CONDENSER17. ESTER DRYER CONDENSATE PUMP <p>C. LIGHT CUT ESTER FRACTIONATION PROCESS</p> <ol style="list-style-type: none">1. LIGHT CUT ESTER PREHEATER2. LIGHT CUT ESTER STILL3. LIGHT CUT ESTER CONDENSER4. LIGHT CUT ESTER VENT CONDENSER5. SINGLE STAGE EJECTOR6. LIGHT CUT ESTER PUMPS7. LIGHT CUT ESTER PRODUCT COOLER8. LIGHT CUT ESTER REBOILER9. LIGHT CUT ESTER POT PUMPS <p>D. INTERMEDIATE ESTER FRACTIONATION PROCESS</p> <ol style="list-style-type: none">1. INTERMEDIATE ESTER STILL2. INTERMEDIATE ESTER CONDENSER3. INTERMEDIATE ESTER VENT CONDENSER4. HEAVY CUT ESTER DISTILLATE RECEIVER5. INTERMEDIATE ESTER DISTILLATE PUMP6. INTERMEDIATE ESTER COOLER7. INTERMEDIATE ESTER REBOILER8. INTERMEDIATE ESTER POT PUMPS

METHYL ESTER AND GLYCERINE MANUFACTURING PROCESS

NC NO.	EQUIPMENT DESCRIPTION
	<ul style="list-style-type: none">9. THREE (3) ESTER BOTTOMS TANKS10. ESTER BOTTOMS TO REFINERY TANKS11. TWO (2) ESTER FEED TO REFINERY TANKS12. ESTER SCALE TANK13. TWO (2) ESTER SWING TANKS14. WCE BOTTOMS TANKS
	E. ESTER FRACTIONATION PROCESS
	<ul style="list-style-type: none">1. ESTER STILL2. ESTER CONDENSER3. ESTER VENT CONDENSER4. ESTER DISTILLATE RECEIVER5. ESTER DISTILLATE PUMP6. ESTER COOLER7. ESTER REBOILER8. ESTER POT PUMPS9. FIVE (5) ESTERS TO SCALES TANKS10. THREE (3) ESTERS TO HFA11. ESTER TO HFA TANK12. TWO (2) ESTERS LCFA TANKS13. FOUR (4) ESTERS TO LCFA/SCALES TANKS
	F. METHANOL CONCENTRATOR PROCESS
	<ul style="list-style-type: none">1. METHANOL CONCENTRATOR FEED/BOTTOMS INTERCHANGER2. METHANOL CONCENTRATOR3. METHANOL CONCENTRATOR BOTTOM PUMP4. METHANOL CONCENTRATOR REBOILER
	G. METHANOL RECOVERY/DRYING PROCESS
	<ul style="list-style-type: none">1. ESTER VENT SEAL TANK2. METHANOL DRYER FEED TANK3. METHANOL DRYER FEED PUMP4. METHANOL DRYER INTERCHANGE5. METHANOL DRYER PUMP6. METHANOL DRYER7. WEST VENT CONDENSER8. WEST VENT FINAL CONDENSER9. METHANOL STORAGE TANK10. METHANOL CONDENSER11. METHANOL DISTILLATE TANK12. METHANOL DISTILLATE PUMP
	H. GLYCERINE COLUMN PROCESS
	<ul style="list-style-type: none">1. DRY GLYCERINE TANK2. DRY GLYCERINE FEED PUMP3. GLYCERINE COLUMN4. GLYCERINE COLUMN PUMP5. GLYCERINE COLUMN REBOILER6. GLYCERINE INTERCHANGER7. GLYCERINE BOTTOMS COOLER

METHYL ESTER AND GLYCERINE MANUFACTURING PROCESS

A/C NO.	EQUIPMENT DESCRIPTION
---------	-----------------------

I. GLYCERINE ACIDULATION AND NEUTRALIZATION PROCESS

1. GLYCERINE ACIDULATION MIXER
2. GLYCERINE ACIDULATION REACTOR/SETTLER
3. ACIDULATED GLYCERINE PUMP
4. DILUTE CAUSTIC PUMP
5. GLYCERINE NEUTRALIZATION MIXER
6. ACIDULATED SOAPSTONE SURGE TANK
7. ACIDULATED SOAPSTONE SURGE PUMP

J. GLYCERINE CONCENTRATION FEED TANK

1. GLYCERINE EVAPORATOR FEED TANK
2. GLYCERINE EVAPORATOR
3. GLYCERINE EVAPORATOR REBOILER
4. GLYCERINE EVAPORATOR PUMP
5. GLYCERINE PRODUCT PUMP
6. GLYCERINE EVAPORATOR CONDENSER
7. GLYCERINE EVAPORATOR CONDENSER PUMP
8. 3-STAGE EJECTOR
9. GLYCERINE TO SHIPMENT TANK

Appendix 'B'

METHYL ESTER & GLYCERINE MFG PROCESS
PROCESS EMISSIONS

A/C 23262

THE PROCTER & GAMBLE MANUFACTURING CO.

METHYL ESTER AND GLYCERINE MANUFACTURING PROCESS EMISSIONS

EMISSION SOURCE ID	EQUIPMENT ID	EMISSIONS UNIT NAME	CAPACITY (GAL)	SOCMI DEVICE TYPE	CONTENTS OR PRODUCTS	VENT	MAXIMUM ALLOWABLE THROUGHPUT OR PRODUCTION (LB/QUARTER)	MAXIMUM ALLOWABLE VOC EMISSIONS	
								LB/DAY	LB/QUARTER
0300	70-E-8604 70-E-8506A 70-E-8506B	OVERHEAD (FIN FAN) CONDENSER	NA	CONDENSER	VAPOR	TO FIRE PIT VIA RELIEF DEVICE	NO LIMIT	NO LIMIT	0
0301	25-C-8800	GLYCERINE EVAPORATOR	470	PROCESS TANK	GLYCERINE	TO DEVICE 1020	NO LIMIT [A]	NO LIMIT	0
0302	40-E-7762	ESTERS BOILING WATER CONDENSER	125	PROCESS TANK	WATER	NO VENT	NO LIMIT	NO LIMIT	0
0303	73-C-1211	ESTERS BOILING WATER CONDENSER CONDENSATE TANK	411	PROCESS TANK	WATER	NO VENT	NO LIMIT	NO LIMIT	0
0304	40-E-7763	ESTERS COLDWATER CONDENSER		PROCESS TANK	WATER	NO VENT	NO LIMIT	NO LIMIT	0
1002	40-D-7821	TANK 671	10,842	PROCESS TANK	ESTERS	6' PVVV	5,000,000	NO LIMIT	136
1004	40-D-338	TANK 672	34,595	PROCESS TANK	ESTERS	8° PVVV	120,200,000	NO LIMIT	104
1005	40-0-339	TANK 673	34,595	PROCESS TANK	ESTERS	8" PVVV	120,000,000	NO LIMIT	105
1006	40-D-8909	TANK 607	385,437	PROCESS TANK	ESTERS	4" PVVV	138,750,000	NO LIMIT	202
1007	90-G-8908	TANK 724	454,334	PROCESS TANK	ESTERS	4" PVVV	138,750,000	NO LIMIT	762
1007.1	40-D-8904	TANK 726	454,334	PROCESS TANK	ESTERS	4" PVVV	120,200,000	NO LIMIT	202
1008	90-0-7406	TANK 725 AKA TANK 605	455,557	PROCESS TANK	ESTERS	6" PVVV	120,200,000	NO LIMIT	732
1010	20-D-817	TANK 595	8,122	PROCESS TANK	ESTERS	3" VENT	145,000,000	NO LIMIT	177
1010.1	20-D-818	TANK 596	7,638	PROCESS TANK	ESTERS	3" VENT	145,000,000	NO LIMIT	169
1012	20-D-7538	ESTER DRYER	1,946	DRYER	ESTERS	APC THERMAL OXIDIZER (NTO)	138,230,000 [B]	NO LIMIT	1,400
1019	71-D-305	TANK 532 (NEW)	8,400	REACTOR	GLYCERINE	4" VENT	26,250,000	NO LIMIT	1
1020	25-E-8820	GLYCERINE EVAPORATOR CONDENSER	423	PROCESS VENT	WATER/ VAPOR	2" DRAIN	6,750,000	NO LIMIT	1,104
1021	65-D-312	TANK 554	2,879	PROCESS TANK	GLYCERINE	4" VENT	23,000,000	NO LIMIT	21
1022	30-C-4029	TANK 567	1,625	PROCESS TANK	ESTERS	2.5' VENT	4,500,000	NO LIMIT	0.3
1041	40-0-7357	ESTER EJECTOR CONDENSATE TANK	3,069	PROCESS TANK & PROCESS VENT	ESTERS! WATER	4° VENT	6,000,000	NO LIMIT	7.9
1067	71-D-521	TANK 521	16,076	PROCESS TANK	VEGETABLE OIL	4' VENT	10,000,000	NO LIMIT	1
1070	71-0-306	TANK 531	1,028	PROCESS TANK	WATER/ GLYCERINE	4" VENT	5,000,000	NO LIMIT	0

METHYL ESTER AND GLYCERINE MANUFACTURING PROCESS EMISSIONS

EMISSION SOURCE ID	EQUIPMENT ID	EMISSIONS UNIT NAME	CAPACITY (GAL)	SOCMI DEVICE TYPE	CONTENTS OR PRODUCTS	VENT	MAXIMUM ALLOWABLE THROUGHPUT OR PRODUCTION (LB/QUARTER)	MAXIMUM ALLOWABLE VOC EMISSIONS	
								LB/DAY	LB/QUARTER
1071	71-D-319	TANK 544	21,152	PROCESS TANK	GLYCERINE	4" VENT	26,250,000	NO LIMIT	0
1072	71-D-318	TANK 545	21,152	PROCESS TANK	GLYCERINE	4" VENT	26,250,000	NO LIMIT	0
1077	15-D-7559	BOTTOMS FROM CENTRIFUGE	20	PROCESS TANK	ESTERS	12° OPEN TOP	500,000	NO LIMIT	0
1093	90-0-7409	TANK 609	108,403	PROCESS TANK	ESTERS	8" PVVV	10,000,000	NO LIMIT	2.9
1304	15-0-301	TANK 542	3,946	PROCESS TANK	NaOH SOLUTION	VENT	NO LIMIT	NO LIMIT	0
1310	30-C-4016	TANK 606	24,690	PROCESS TANK	METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1311	30-C-7833	ESTER FLASH TANK	1,128	PROCESS TANK	ESTERS	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [A]	NO LIMIT	0
1313	40-C-1208	ESTERS DISTILLATE RECEIVER	47	PROCESS TANK	ESTERS	TO DEVICE 1041	NO LIMIT [A]	NO LIMIT	0
1314	40-C-1210	ESTERS STILL DISTILLATE RECEIVER	202	PROCESS TANK	ESTERS	TO DEVICE 1041	NO LIMIT [A]	NO LIMIT	0
1316	40-C-1215	ESTERS STILL DISTILLATE RECEIVER	212	PROCESS TANK	ESTERS	TO DEVICE 1041	NO LIMIT [A]	NO LIMIT	0
1317	40-C-308	ESTERS STILL	4,791	DISTILLATION COLUMN	ESTERS	TO DEVICE 1041	NO LIMIT [A]	NO LIMIT	0
131B	40-C-7315	ESTERS STILL AKA TANK 638	10,364	DISTILLATION COLUMN	ESTERS	TO DEVICE 1041	NO LIMIT [A]	NO LIMIT	0
1319	40-C-7324	ESTERS STILL	11,685	DISTILLATION COLUMN	ESTERS	TO DEVICE 1041	NO LIMIT [A]	NO LIMIT	0
1320	40-C-7766	ATMOSPHERIC FLASH TANK		PROCESS TANK	WATER	VENT	NO LIMIT	NO LIMIT	0
1375	60-C-4503	TANK 601	12,976 9,000	PROCESS TANK	METHANOL/ SODIUM METHOXIDE	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1376	60-C-709	TANK 582	12,976	PROCESS TANK (OUT OF SERVICE)	OUT OF SERVICE	NO VENT	0	0	0
1377	60-C-8756	TANK 588	3,760	PROCESS TANK	METHANOL/ SODIUM METHOXIDE	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1378	65-C-823	GLYCERINE COLUMN	1,904	DISTILLATION COLUMN	GLYCERINE	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1380	70-C-4416	TANK 578	185	PROCESS TANK	METHANOL/ WATER	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1381	70-C-576	TANK 576	200	PROCESS TANK	METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0

METHYL ESTER AND GLYCERINE MANUFACTURING PROCESS EMISSIONS

EMISSION SOURCE ID	EQUIPMENT ID	EMISSIONS UNIT NAME	CAPACITY (GAL)	SOCMI DEVICE TYPE	CONTENTS PRODUCTS	VENT	MAXIMUM ALLOWABLE THROUGHPUT OR PRODUCTION (LB/QUARTER)	MAXIMUM ALLOWABLE VOC EMISSIONS	
								LB/DAY	LB/QUARTER
1382	70-C-701	TANK 572	8367	PROCESS TANK	METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1383	70-C-702	TANK 573	8,335	PROCESS TANK	METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1384	70-C-705	TANK 592	6,639	PROCESS TANK	METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1385	70-C-706	TANK 593	6,639	PROCESS TANK	METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1386	70-C-707	TANK 594	6,639	PROCESS TANK	METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1387	70-C-8044	TANK 584	5,711	PROCESS TANK	WATER/ METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1388	70-C-851	TANK 597	7,950	PROCESS TANK	METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1389	70-C-8701	TANK 577	288	PROCESS TANK	METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1390	70-D-714	TANK 583	4,512	PROCESS TANK	WATER/ METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT pi	NO LIMIT	0
1391	71-D4	TANK 547	7,615	PROCESS TANK	HCl SOLUTION	4" VENT	NO LIMIT	NO LIMIT	0
1392	71-D-512	TANK 512	15,280	PROCESS TANK	GLYCERINE	4" VENT	1,000,000	NO LIMIT	0.2
1393	71-D-522	TANK 522	16,076	PROCESS TANK (OUT OF SERVICE)	OUT OF SERVICE	NA	0	0	0
1396	73-D-500	TANK 500	10,156	PROCESS TANK	FATTY ACIDS, ESTERS, VEGETABLE OIL	2" VENT	1,000,000	NO LIMIT	1.8
1397	73-D-501	TANK 501	10,156	PROCESS TANK	FATTY ACIDS, ESTERS, VEGETABLE OIL	2" VENT	1,000,000	NO LIMIT	1.8
1400	73-D-8920	OIL SKIMS SURGE TANK-TANK 8920	22,000	PROCESS TANK	WATER, FATTY ACIDS	8" VENT, 8" OVERFLOW	373,750,000	NO LIMIT	0
1401	73-D-8927	OIL COALESCER	8,813	PROCESS TANK	WATER, FATTY ACIDS	8" VENT, 10" OVERFLOW	373,750,000	NO LIMIT	0.1
1402	73-D-8928	ACID WATER TANK	3,760	PROCESS TANK	WATER/ ESTERS	2" VENT, 6" OVEFLOW	12,500,000	NO LIMIT	0
1408	90-0-626	TANK 548	22,474	PROCESS TANK	H2SO4 SOLUTION	4" PVVV	NO LIMIT	NO LIMIT	0

METHYL ESTER AND GLYCERINE MANUFACTURING PROCESS EMISSIONS

EMISSION SOURCE ID	EQUIPMENT ID	EMISSIONS UNIT NAME	CAPACITY (GAL)	SOCMI DEVICE TYPE	CONTENTS PRODUCTS	VENT	MAXIMUM ALLOWABLE THROUGHPUT OR PRODUCTION (LB/QUARTER)	MAXIMUM ALLOWABLE VOC EMISSIONS	
								LB/DAY	LB/QUARTER
1409	60-C-8751	SODIUM METHYLATE COLUMN - TANK 587	1,680	DISTILLATION COLUMN	METHANOL/ SODIUM METHYLATE	APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1412	65-C-8084	TANK 568	4,848	PROCESS TANK	METHANOL/ GLYCERINE	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1415	65-C-820	TANK 574	8,226	PROCESS TANK	GLYCERINE/ METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1418	30-C-4506	TANK 602	17,768	PROCESS TANK	GLYCERINE/ METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1421	20-C-4600	TANK 603	17,768	PROCESS TANK	GLYCERINE/ METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1430	15-Y-4104	ESTER BOTTOMS CENTRIFUGE	15	CENTRIFUGE	ESTERS	TO DEVICE 1077	NO LIMIT [A]	NO LIMIT	0
1430.1	15-Y-7544	ESTER BOTTOMS CENTRIFUGE	15	CENTRIFUGE	ESTERS	TO DEVICE 1077	NO LIMIT [B]	NO LIMIT	0
1435	70-C-8700	METHANOL DRYER	19,735	DRYER	METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1436	70-C-8716	METHANOL CONDENSER	68	CONDENSER	WATER/ METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1437	20-C-7513	ESTER WASH COLUMN (EAST)	1,214	PROCESS TANK	GLYCERINE/ METHANOL	NO VENT	NO LIMIT [C]	NO LIMIT	0
1437.1	20-C-4602	ESTER WASH COLUMN (NORTH)	1,214	PROCESS TANK	GLYCERINE/ METHANOL	NO VENT	NO LIMIT [C]	NO LIMIT	0
1437.2	20-C-804	ESTER WASH COLUMN (SOUTH)	850	PROCESS TANK	GLYCERINE/ METHANOL	NO VENT	NO LIMIT [C]	NO LIMIT	0
1437.3	20-C-2326	NEW ESTER WASH COLUMN	6,205	PROCESS TANK	GLYCERINE/ METHANOL	NO VENT	NO LIMIT [C]	NO LIMIT	0
1438	30-C-7534	ESTER REACTOR	44,842	REACTOR	VEGETABLE OIL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
1439	30-E-7840 & 30-E-7841	ESTER FLASH AIR-COOLED CONDENSER AND CONDENSATE RECEIVER	210	CONDENSER	METHANOL	TO APC THERMAL OXIDIZER (NTO)	NO LIMIT [B]	NO LIMIT	0
TOTAL VOC EMISSIONS									5,131

[A] SOURCE VENTS TO ANOTHER SOURCE THAT HAS A THROUGHPUT LIMIT AND EMISSIONS LIMIT.

[B] SOURCE VENTS TO NORTH THERMAL OXIDIZER (SMAQMD PERMIT NO. 22483). BACKUP VENTING THROUGH THE APC KNOCKOUT DRUM SCRUBBER TO FIRE PIT.

[C] SOURCE HAS NOT ATMOSPHERIC VENT AND EMISSIONS LIMIT.

Appendix 'C'

METHYL ESTER & GLYCERINE MFG PROCESS

TANKS 4.0 EMISSIONS RESULTS

- EXISTING TANK 532 (5,076 GAL)
- PROPOSED TANK 532 (8,400 GAL)

A/C 23262

THE PROCTER & GAMBLE MANUFACTURING CO.

Cirrus Tanks 0.2.3.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	1019 Tank 532 Raw Glycerin
City:	Sacramento
State:	California
Company:	Procter and Gamble
Type of Tank:	Vertical Fixed Roof Tank
Description:	Tank 532 EMID 1019 Raw Glycerin

41si LL
cg;VkV.a

Tank Dimensions

Shell Height (ft):	14.00
Diameter (ft):	8.00
Liquid Height (ft) :	14.00
Avg. Liquid Height (ft):	9.00
Volume (gallons):	5,076.00
Turnovers:	3.30
Net Throughputgal/yr:	16,750.80
Is Tank Heated (yin):	V

Paint Characteristics

Shell Color/Shade:	Gray/Medium
Shell Condition	Good
Roof Color/Shade:	Gray/Medium
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft)	1.50
Radius (ft) (Dome Roof)	0.00

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

Meteorological Data used in Emissions Calculations: Sacramento, California (Avg Atmospheric Pressure = 14.72 psia)

Cirrus Tanks 0.2.3.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

1019 Tank 532 Raw Glycerin - Vertical Fixed Roof Tank
Sacramento, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight.	Liquid Mass Fran.	Vapor Mass Frost	Mol. Weight
		Avg.	Min.	Max.		Avg.	Min.	Max.				
1019 Tank 532 Raw Glycerin	All	180.00	179.00	181.00	183.00	29227	2.8583	2.9884	18.2309			121.35
C5 fatty acid						0.07612	0.0733	0.0788	115.2000	0.0020	0.0003	118.20
C10 fatty acid						0.0127	0.0123	0.0132	144.2000	0.0300	0.0009	144.20
C18 fatty acid						0.0029	0.0028	0.0030	172.3000	0.0400	0.0003	172.30
C22 fatty acid						0.0008	0.0007	0.0008	200.3000	0.2900	0.0005	200.30
C24 fatty acid						0.0091	9.0088	0.0095	188.3000	0.5800	0.0121	186.30
water						7.4841	7.2999	7.6316	18.0000	0.0580	0.9859	18.00

Cirrus Tanks 0.2.3.0 Emissions Report - Detail Format Detail Calculations (AP-42)

1019 Tank 532 Raw Glycerin - Vertical Fixed Roof Tank Sacramento, California

.....
Annual Emission Calculations

Standing Losses (ph):	6.0146
Vapor Space Volume (cu ft):	278.9093
Vapor Density (lb/cu ft):	0.0078
Vapor Space Expansion Factor:	0.0142
Vented Vapor Saturation Factor:	0.5378
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	278.9093
Tank Diameter (ft):	8.0000
Vapor Space Outage (ft):	5.5487
Tank Shell Height (ft):	14.0000
Average Liquid Height (ft):	9.0000
Roof Outage (ft):	0.5487
Roof Outage (Dome Roof)	
Roof Outage (ft):	0.5497
Roof Height (ft):	1.5000
Roof Slope (ft/ft):	0.0000
Shell Radius (ft):	4.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0078
Vapor Molecular Weight (lb/lb-mole):	18.2309
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.9227
Daily Avg. Liquid Surface Temp. (deg. R):	639.6700
Daily Average Ambient Temp. (deg. F):	60.7917
Ideal Gas Constant R (pound-cu ft/lb-mole-deg R):	10.731
Liquid Bulk Temperature (deg. R):	639.6700
Tank Paint Solar Absorptance (Shell):	0.6800
Tank Paint Solar Absorptance (Roof):	0.6800
Daily Total Solar Insolation Factor (Clear day):	1,562.1317
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0142
Daily Vapor Temperature Range (deg. R):	2.0000
Daily Vapor Pressure Range (psia):	0.1301
Breather Vent Press. Setting Range (psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.9227
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.8583
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	2.9684
Daily Avg. Liquid Surface Temp. (deg R):	639.6700
Daily Min. Liquid Surface Temp. (deg R):	638.6700
Daily Max. Liquid Surface Temp. (deg R):	640.6700
Daily Ambient Temp. Range (deg. R):	25.4500
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.5378
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.9227
Vapor Space Outage (ft):	5.5487
Working Losses (lb):	21.2511
Vapor Molecular Weight (lb/lb-mole):	18.2309
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.9227
Annual Net Throughput (gal/yr):	18,750.8000
Annual Turnovers:	3.3000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	5,075.0090
Maximum Liquid Height (ft):	14.0000
Tank Diameter (ft):	6.0000
Working Loss Product Factor:	1.0090
Total Losses (114):	27.2658

Cirrus Tanks 02.3.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: 2011

1019 Tank 532 Raw Glycerin - Vertical Fixed Roof Tank
Sacramento, California

		Losses (lbs)		
Components		Working Loss	Breathing Loss	Total Emissions
1019 Tank 532 Raw Glycerin	1	21.25	6.01	27.27
C6 fatty acid	1	0.01	0.00	0.01
C6 fatty acid	1	0.02	0.01	0.03
C10 fatty acid	1	0.01	0.00	0.01
C12 fatty acid	1	0.01	0.00	0.01
C14 fatty acid	1	0.26	0.07	0.33
water	1	2095	5.93	2100.93

060ing'70eili..'
 V.0.0:...0:36:11Mir::

Cirrus Tanks 0.2.3.0
Emissions Report - Detail Format
Tank Identification and Physical Characteristics

Identification

User Identification:	1019 Tank 532 Raw Glycerin
City:	Sacramento
State:	California
Company:	Procter and Gamble
Type of Tank:	Vertical Fixed Roof Tank
Description:	Tank 532 EMID 1019 Raw Glycerin

Level Control

Tank Dimensions

Shell Height (ft):	10.00
Diameter (ft):	12.00
Liquid Height (ft):	10.00
Avg. Liquid Height (ft):	7.00
Volume (gallons):	8,400.00
Turnovers:	3.30
Net Throughput(gal/yr):	27,720.00
Is Tank Heated (yin):	

Good Run

Paint Characteristics

Shell Color/Shade:	Gray/Medium
Shell Condition	Good
Roof Color/Shade:	Gray/Medium
Roof Condition:	Good

Roof Characteristics

Type:	Dome
Height (ft)	1.50
Radius (ft) (Dome Roof)	0.00

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

Meteorological Data used in Emissions Calculations: Sacramento, California (Avg Atmospheric Pressure = 14.72 psis)

Cirrus Tanks 0.2.3.0
Emissions Report - Detail Format
Liquid Contents of Storage Tank

1019 Tank 532 Raw Glycerin - Vertical Fixed Roof Tank
Sacramento, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Sulf Temp (deg F)	vapor NO5511111 (pia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract	Mol. Weight
		Avg.	Min.	Max.		Avg.	Min.	Max.				
1019 Tank 532 Raw Glycerin	All	160.00	179.00	181.00	189.00	2.9227	2.8583	2.9884	18.2309			121.35
C6 fatty acid						0.0760	0.0733	0.0788	116.2000	0.0020	0.0003	116.20
C8 fatty acid						0.0127	0.0123	0.0132	144.2000	0.0300	0.0006	144.20
C10 fatty add						0.0029	0.0028	0.0030	172.3000	0.0400	0.0003	172.30
C12 fatty acid						0.00011	0.0007	0.0006	200.3000	0.2900	0.0005	200.30
C14 fatty acid						0.0091	0.0088	0.0095	166.3000	0.5800	0.0121	188.30
water						7.4641	7.2098	7.6316	18.0000	0.0580	0.9859	18.00

Cirrus Tanks 0.2.3.0 Emissions Report - Detail Format Detail Calculations (AP-42)

1019 Tank 532 Raw Glycerin - Vertical Fixed Roof Tank Sacramento, California

Annual Emission Calculations	
Standing Losses (113):	10.8896
Vapor Space Volume (cu ft):	432.3808
Vapor Density (113/cu ft):	0.0078
Vapor Space Expansion Factor:	0.0142
Vented Vapor Saturation Factor:	0.6281
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	432.3808
Tank Diameter (ft):	12.0000
Vapor Space Height (ft):	3.6231
Tank Shell Height (ft):	10.0000
Average Liquid Height (ft):	7.0000
Roof Height (ft):	0.8231
Roof Outage (Dome) (ft):	0.6231
Roof Height (ft):	1.5000
Roof Slope (ft):	0.0000
Shell Radius (ft):	6.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0078
Vapor Molecular Weight (lb/lbmole):	18.2309
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.9227
Daily Avg. Liquid Surface Temp. (deg. R):	539.6700
Daily Average Ambient Temp. (deg. F):	50.7917
Ideal Gas Constant R (ft-lbf/lbmol-R):	10.731
Liquid Film Temperature (deg. R):	539.6700
Tank Paint Solar Absorptance (Shell):	0.5800
Tank Paint Solar Absorptance (Roof):	0.5800
Daily Total Solar Insolation (Btu/sq ft-day):	1,562.1317
Vapor Space Expansion Factor:	0.0142
Daily Vapor Temperature Range (deg. R):	2.0000
Daily Vapor Pressure Range (psia):	0.1301
Smellier Vent Press. Setting Range (psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.9227
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.8583
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	2.8864
Daily Avg. Liquid Surface Temp. (deg R):	539.6700
Daily Min. Liquid Surface Temp. (deg R):	538.6700
Daily Max. Liquid Surface Temp. (deg R):	540.6700
Daily Ambient Temp. Range (deg. R):	25.4500
Vented Vapor Saturation Factor:	0.6281
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.9227
Vapor Space Height (ft):	3.8231
Working Losses (lb):	35.1673
Vapor Molecular Weight (lb/lbmole):	18.2309
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.8227
Annual Net Throughput (gal/yr.):	27,720.0000
Annual Turnovers:	3.3000
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	8,400.0000
Maximum Liquid Height (ft):	10.0000
Tank Diameter (ft):	12.0000
Working Loss Product Factor:	1.0000
Total Losses (0*)	46.0570

**Cirrus Tanks 0,2.3.0
Emissions Report - Detail Format
Individual Tank Emission Totals**

Emissions Report for: 2011

**1019 Tank 532 Raw Glycerin - Vertical Fixed Roof Tank
Sacramento, California**

Components	Losses(lbs)		
	Working LOSS	Breathing Losal	Total EMISSIONS
1019 Tail(532 Raw Glycerin	35.171	10.891	45.06
CS fatty add	0.01	0.00	0.01
C8 fatty acid	0.031	0.01	0.04
010 fatty acid	0.01	0.00	0.01
=fatty acid	0.02	0.01	0.03
C14 fatty acid	0.42	0.13	0.55
water	34.571	10.741	45.31

• VOO' _ = 65.115/yr

Appendix 'C-1'

METHYL ESTER & GLYCERINE MFG PROCESS
TANKS 4.0 EMISSIONS RESULTS [March 7, 2005]

- EXISTING TANK 532 (5,076 GAL)

P/O 22270

THE PROCTER & GAMBLE MANUFACTURING CO.

[illegible]

1-us
a)
cm
012
a.

o
 u.
 a
 Lo
 8
 LL
 a
 Tti
 O
 C
 el: 1
 45K
 hd
 Q.
 coli.
 i. CC
 (s)
 0 731
 f7)
 tZ
 *EE
 LLi
 'O
 ..
 C
 CC

[illegible]

3)7/200511:43:02AM

FAL
te.

COS
I-
15
0 e N
CC -
22

δ
'e"
ω

CO
E
O

K
co
O

1-us
a)
cm
012
a.

TANKS 4.0

Emissions Report - Detail Format

Liquid Contents of Storage Tank

Mixture/Component	Daily Liquid Surd. Temperatures (deg F)		Vapor Pressures (psia)		V _L	Basis for Vapor Pressure Calculations
	Avg.	Max.	Avg.	Max.		
2	190.00	200.00	5.9404	7.3330	0	Option 2: A=7.01, B=2183, C=180.8
g			0.0017	0.0025	0	Option 2: A=7.897, B=1474.06, C=229.13
			94.0931	40.831	0	Option 2: A=8.071, B=1731, C=233.4
			9.2864	11.4690	0	

[illegible]

TANKS 4.0

Emissions Report - Detail Format

Detail Calculations (AP-42)- (Continued)

Working Losses (lb):
Vapor Molecular Weight (lb/lb-mole):
Vapor Pressure at Daily Average Liquid
Surface Temperature (psia):
Annual Net Throughput (gal/yr.):
Annual Turnovers:
Turnover Factor:
Maximum Liquid Volume (gal):
Maximum Liquid Height (ft):
Tank Diameter (ft):
Working Loss Product Factor:

22
822
16
3VP
24
29
1
8
2
4
7
48

Total Losses Vb):

TANKS 4.0
Emissions Report - Detail Format
Individual Tank Emission Totals

Annual Emissions Report

Components	Losses (lbs)		Total Emissions
	Working Loss	Breathing Loss	
1019		-86.21	1,679.43
glycerin	0.97	-0.05	0.92
Methyl alcohol	80.27	-2.45	77.81
water	1,714.40	-83.71	1,630.69

Existing Tank 532
Tank emissions calculated on
3-07-05 that included methanol
as one of the components
VOC= 48.73 lb/yr or
12 lb/qtr

Appendix D'

METHYL ESTER & GLYCERINE MFG PROCESS
FACILITY 5-YEAR NSR BALANCES

NC 23262

THE PROCTER & GAMBLE MANUFACTURING CO.

THE PROCTER GAMBLE MANUFACTURING CO.
FACILITY NSR BALANCES FROM 2005 - 2011

[illegible]